Format No: CP/TF/2017

TEST REPORT FOR SAND MASONRY MORTARS

Date: 06-08-20

Lab ID	:	**CP-2020-09-11-33**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-08-20
Sample Type	:	Fine Aggregate, M.Sand for Mortar
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2116-1980 (RA-2007) (Specification for Sand for Masonry Mortars) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	03-08-20
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS: 2116-1980 (RA-2007)
1	4.75 mm	0	0	0	100	100
2	2.36 mm	85	85	8.5	91.5	90-100
3	1.18 mm	200	285	28.5	71.5	70-100
4	600 micron	146	431	43.1	56.9	40-100
5	300 micron	116.5	547.5	54.8	45.3	5-70
6	150 micron	412.5	960	96.0	4.0	0-15
7	Pan	40	1000	100.0	0.0	0

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TEST REPORT FOR SAND MASONRY MORTARS

Lab ID : **CP-2020-09-11-33** **Date: 06-08-20**

PHYSICAL PROPERTIES

SLno	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	3.18	–
2	Specific Gravity	2.51	–
3	Material finer than 75 micron(%)	12.2	Crushed Fine aggregate Max 15%
4	*Compacted Bulk Density (Kg/litre)	1.90	–
5	*Loose Bulk Density (Kg/litre)	1.73	–

Note:
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Technical Manager

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TEST REPORT FOR PLASTER SAND

Date: 07-08-20

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-08-20
Sample Type	:	Plaster Sand
Reference to BIS codes	:	IS: 383 : 2016 (Specification for Coarse and fine Aggregates) IS1542:1992 (Sand for Plaster - Specification) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	03-08-20
Total weight taken	:	1000 grams

SLno	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS: 2116-1980 (RA-2007)
1	10 mm	0	0	0	100	100
2	4.75 mm	35	35	3.5	96.5	95-100
3	2.36 mm	15	50	5	95	95-100
4	1.18 mm	50	100	10	90	90-100
5	600 micron	100	200	20	80	80-100
6	300 micron	215	415	41.5	58.5	20-65
7	150 micron	500	915	91.5	8.5	0-15
8	Pan	85	1000	100	0	---

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-09-11-33** **Date: 07-08-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.8	–
2	Specific Gravity	2.56	–
3	Material finer than 75 micron(%)	8.5	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Date: 27/07/2020

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-07-20
Customer ID	:	RMC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	27/07/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RMC	M20	20/07/2020	27/07/2020	149.52 X 151.39 X 151.56	22635	8.596	413.8	18.3	18.6
2	RMC	M20	20/07/2020	27/07/2020	151.32 X 150.03 X 151.16	22702	8.802	423.5	18.7	
3	RMC	M20	20/07/2020	27/07/2020	151.01 X 151.11 X 151.59	22819	8.422	432.9	19.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 17/08/2020

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-07-20
Customer ID	:	RMC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	17/08/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RMC	M20	20/07/2020	17/08/2020	151.86 X 151.24 X 150.41	22967	8.863	539.6	23.5	23.4
2	RMC	M20	20/07/2020	17/08/2020	149.24 X 149.07 X 151.80	22247	8.848	511.1	23.0	
3	RMC	M20	20/07/2020	17/08/2020	149.48 X 149.14 X 149.81	22294	8.266	528.0	23.7	

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TEST REPORT OF FINE AGGREGATE

Date: 09-07-20

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-07-20
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	07-07-20
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	27	27	2.7	97.3	90-100	90-100	90-100	95-100
3	2.36 mm	55	82	8.2	91.8	60-95	75-100	85-100	95-100
4	1.18 mm	239	321	32.1	67.9	30-70	55-90	75-100	90-100
5	600 micron	205	526	52.6	47.4	15-34	35-59	60-79	80-100
6	300 micron	203	729	72.9	27.1	5-20	8-30	12-40	15-50
7	150 micron	191	920	92.0	8.0	0-10	0-10	0-10	0-15
8	Pan	80	1000	100.0	0.0	—	—	—	—

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Date: 09-07-20

Lab ID : **CP-2020-09-11-33**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-09-11-33** **Date: 09-07-20**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-07-20
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	07-07-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	199	199	4.0	96.0	90-100
3	10 mm	3050	3249	65.0	35.0	25-55
4	4.75 mm	1502	4751	95.0	5.0	0-10
5	Pan	249	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2020-09-11-33 Date: 09-07-20

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.7	
3	Specific Gravity	2.62	-
4	Bulk Density(Loose) (Kg/l)	1.48	-
5	Bulk Density(Compacted) (Kg/l)	1.55	-
6	Water Absorption(%)	0.27	-
7	Aggregate crushing Value(%)	23.9	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface
8	Aggregate Impact Value(%)	23.1	30% for Aggregates to be used in concrete for wearing Surface. 45% for Aggregates to be used in concrete other than for wearing Surface

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 10-07-20

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-07-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11) 1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	08-07-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.08	–
2	Finess by Air permeablity method (m^2/kg,Min)	298.5	225m^2/kg, Min
3	Density (gm/cc)	3.13	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	145 minutes	Not less than 30 minutes
6	Final Setting time	275 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Format No. CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 05-08-20

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-07-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	08-07-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-09-11-33** **Date: 10-07-20**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	07-07-20
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	07-07-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	189	189	1.3	98.7	90-100
3	20 mm	7284	7473	49.8	50.2	30-70
4	10 mm	4089	11562	77.1	22.9	10-35
5	4.75 mm	3001	14563	97.1	2.9	0-5
6	Pan	437	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-09-11-33** **Date: 10-07-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.5	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.8	
3	Specific Gravity	2.66	-
4	Bulk Density(Loose) (Kg/l)	1.42	-
5	Bulk Density(Compacted) (Kg/l)	1.48	-
6	Water Absorption(%)	0.21	-

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TEST RESULTS OF STEEL

Date: 13-07-20

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	11-07-20
Sample Type	:	Sunvik
Reference to BIS codes	:	IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.
Date of test:	:	11-07-20

SLNo	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	8	0.391	512	652	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
3	Sunvik	Fe500	12	0.888	544	668	20.0%	Satisfactory	Satisfactory

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Date: 27/07/2020

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar. No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-07-20
Customer ID	:	RMC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	27/07/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RMC	M20	20/07/2020	27/07/2020	150.64 X 151.10 X 150.69	22762	8.596	417.0	18.3	18.7
2	RMC	M20	20/07/2020	27/07/2020	150.94 X 150.52 X 149.64	22721	8.802	430.6	19.0	
3	RMC	M20	20/07/2020	27/07/2020	151.48 X 150.49 X 149.18	22796	8.422	432.3	19.0	

Note:
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-6548 TC-6548

Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Date: 17/08/2020

Lab ID	:	CP-2020-09-11-33
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri D V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-07-20
Customer ID	:	RMC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete CL5
Date of test	:	17/08/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RMC	M20	20/07/2020	17/08/2020	149.52 X 150.02 X 149.21	22430	8.863	524.7	23.4	23.2
2	RMC	M20	20/07/2020	17/08/2020	150.68 X 150.42 X 150.10	22665	8.848	519.5	22.9	
3	RMC	M20	20/07/2020	17/08/2020	150.90 X 149.91 X 150.56	22621	8.266	529.0	23.4	

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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2020-09-11-33** **Date: 27-07-20**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere, Bangalore-560056
Customer's Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	23-07-20
Sample Type/Size	:	Solid concrete blocks size (400X150X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1 Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	23-07-20

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1) :2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	400	152	202	12282	33.278	2709.5	2685.5	Not less than 1800Kg/m^3
2	402	149	202	12099	33.124	2737.6		
3	404	153	202	12486	32.579	2609.2		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	33.91	32.25	4.89	4.25	Shall not be more than 10% by mass
2	33.57	32.14	4.28		
3	33.44	32.24	3.59		

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Date: 27-07-20

Lab ID : **CP-2020-09-11-33**

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	404	150	200	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	402	152	199	
3	402	150	199	
4	404	151	202	
5	404	152	199	
6	400	151	202	
7	399	151	203	
8	401	153	200	
9	404	150	201	
10	401	153	202	
11	402	150	203	
12	404	150	200	
13	400	149	199	
14	401	150	203	
15	401	150	200	
16	401	151	203	
17	400	153	203	
18	403	151	200	
19	402	153	201	
20	401	149	201	
Average of 20	**402**	**151**	**201**	

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Certificate No.: TC-0568

Lab ID : CP-2020-09-11-33

Date: 27-07-20

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	400	150	60047	287.3	4.8	4.7
2	402	152	60931	290.1	4.8	
3	402	150	60400	283.2	4.7	
4	404	151	61004	287.4	4.7	
5	404	152	61390	283.5	4.6	
6	400	151	60467	286.7	4.7	
7	399	151	60079	282.5	4.7	
8	401	153	61220	284.1	4.6	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Grade	Compressive strength	
	Minimum average	Minimum Individual units
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

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CEMENT CONCRETE FLOORING TILES

Date: 01-08-20

Lab ID	:	**CP-2020-09-11-33**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division
Agency	:	Sri.D.V. Kumar, No. 5th Main Road, L.G. Ramanna Layout Laggere,
Customer Reference	:	BBMP/EE/BTP/WO/25/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-07-20
Sample Type	:	Pre-Polished Designer Cement Concrete Tiles
Reference to BIS codes	:	IS 1237:2012
Date of test	:	28-07-20

1. Water Absorption

Sl.No.	Measured Dimension (mm)			Water Absorption (%)	Average (%)	Requirement as per IS:1237-2012
	L	B	T			
1	400	399	25.09	2.530	2.21	The average percentage of water absorption shall not exceed 10.
2	401	401	25.05	1.920		
3	400	401	25.11	2.170		
4	400	399	25.06	2.060		
5	399	400	25.17	1.800		
6	400	400	25.13	2.760		

2.Wet Transverse Strength

Sl.No.	Measured Dimension (mm)			Wet Transverse Strength (N/mm^2)	Average (N/mm^2)	Requirement as per IS:1237-2012
	L	B	T			
1	401	401	25.02	7.83	7.8	The average wet transverse strength shall not be less than $3N/mm^2$.
2	401	401	25.04	8.16		
3	400	399	25.06	7.51		
4	399	401	25.01	7.88		
5	400	400	25.05	8.25		
6	401	399	25.03	7.29		

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QC ABSTRACT

NAME OF WORK: Construction Of RO Plant In Ward No 05 Byatarayanapura Sub Division

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
	Materials				1	1
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Steel	Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		ReBend test	One Test		1	1
6	Block(400*150*200)	BLOCK DENSITY	One Test		1	1
		WATER ABSORPTION	One Test		1	1
		DIMENSION ANALYSIS	One Test		1	1
		COMPRESSIVE STRENGTH	One Test		1	1
7	RMC(M20)	Compressive Strength(7days and 28days)	2 set /6-15 cum	9 22	4	4
8	Mortar Sand	Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		Compacted Bulk Density	One Test		1	1
		Loose Bulk Density	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
9	Plaster Sand	Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
		SIEVE ANALYSIS	One Test		1	1
10	Cement Concrete Flooring Tiles	Water Absorption	One Test		1	1
		Wet Transverse Strength	One Test		1	1

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